Mechanical Engineering

The Journal of the American Society
of Mechanical Engineers

Index to Volume 45

January to December
1923

Published by
The American Society of Mechanical Engineers
29 West Thirty-ninth Street, New York

Index to Mechanical Engineering

Volume 45, January to December, 1923

D denotes discussion; C, correspondence

A

Abbreviations and symbols, mathematical and graphical, standardization of ... 394
Accumulators, steam ... 599
Accuracy of boiler tests (C) ... 69
Acetone, use of in composite engine fuels ... 578
Acetylene ... 712
-driven motor cars ... 708
engines ... 708
Acoustic method of finding elastic limit of metals. 497
ACRES, H. G. Modern hydraulic turbines of large capacity ... 468
correction to above paper ... 563
ADLER, A. A. Stresses in electric-railway motor pinions (D) ... 137
Admiralty Boiler Committee ... 438
Aero engine, Stromboli ... 594
engine, 18-hp. Cherub ... 309
Aerodynamic tests, pendulum ... 490
Aeronautical engineering at New York University 724
"Aerophor" ... 305
A.E.S.C. completes sixth year of successful service 320
"Agricola" ... 359
Air brake, Kunze-Knorr ... 439
Air-bubble action, flow of water and ... 542
Air compression ... 48
compressors, explosions in ... 490
coolers, surface ... 435
drills and hammers, testing ... 542
enriched ... 306
enriched, in gas producers ... 662
enriching ... 305
-gasoline mixtures, dewpoints of ... 601
heaters ... 189
humid ... 703
liquefaction ... 305
making America independent in the ... 513
motor ... 49
preheating ... 655
Air pump, reciprocating ... 306
secondary ... 127
specific heat of, variation with temperature .. 257
tanks ... 541
-water, vapor mixtures ... 703
Aircraft instruments, gyroscopes in ... 434
AIREY, JOHN. Design of milling cutters (D) ... 267
Airplane, Henri-Paul type ... 121
jet propulsion for ... 434
light ... 358
Schneider Co ... 121
Airship for long-haul heavy-traffic service ... 235
Alcohol as fuel ... 188
Allgemeine Elektricitaets Gesellschaft, pulverized-coal burner ... 654
ALLEN, C. M. Modern hydraulic turbines of large capacity (D) ... 474
ALLEN, F. B. Ash-handling methods (D) ... 92
ALLNER, F. A. Hydroelectric power for the metropolitan district ... 322
Allowances and tolerances, standard, for machined fits ... 699
Alloy, zinc-base die-casting ... 250
Alloys, high-temperature, Dr. M. A. Hunter presents facts on, at Newark meeting ... 256
ALPERN, M. Stoker design (D) ... 23
ALTENKIRCH EDMUND ... 711
Aluminizing iron articles ... 307
Aluminum, adding manganese to ... 185
bronze ... 122
bronze as an engineering material ... 283
iron, and electron, research work on ... 185
solders for ... 360
America, commercial aviation in ... 70
in the air, independence of ... 513
American and Canadian engineers coöperate to make A.S.M.E. meeting a success ... 424
American Engineering Council, 1923 officers of the 142
welcomes Caetani ... 142
second annual meeting of ... 142
American locomotives in France ... 710
railroads ... 207
screw-thread series ... 506
AMES, JOS. S. ... 440
Ammonia compression, thermodynamics of ... 57
compressor ... 129
compressor, oscillating ... 312
condenser reports ... 191
constants of ... 367
process, synthetic, Fauser ... 600
tanks ... 541
vapor, saturated, specific volume of ... 313, 547
ANDRADE, C., JR. ... 438
Andrade differential for motor cars ... 438
ANGUS, R. W. Modern hydraulic turbines of large capacity (D) ... 473
Angus shops of C.P.R., Montreal, steel-car construction at ... 349
Annealing low-temperature, cold-drawn steels ... 656
Annual and Spring Meetings. *See* A.S.M.E.
Anthracite culm ... 361
Appalachian mountains, southern, water, coal and man power of western slope of ... 637
Apparatus and instruments, test code on ... 116
mechanical power-transmission, safety code for ... 384, 173
Apprentices and shop training, schools for ... 293
ARMACOST, W. H. High-temperature and high-pressure steam lines (D) ... 709
Army Commission, American ... 363
ARNOLD, ARNOLD A. ... 364
ARRHENIUS, SVANTE ... 141
Art and the engineer ... 133
of power development, progress in ... 544
Ash, coal ... 657
-fusion type of gas producer ... 83
handling, methods of ... 657
removal, automatic, Usco patent ... 265
Asiatic markets for industrial machinery ... 59
A.S.M.E. Annual Meeting, forty-third ... 67
Aeronautic session ... 61
Ash-handling session ... 67
Boiler code hearings at the ... 59
Business meeting of ... 67
Education and training session of ... 62
First general session of ... 62
Forest-products session of ... 67
Machine-shop session of ... 61
Management session of ... 60
Ordnance session of ... 67
Power session of ... 63
Power test code hearing at the ... 67
Railroad session of ... 63
Refrigeration session of ... 60
Research session of ... 62
Safety engineering session of ... 67
Second general session of ... 63
Social events and excursions of ... 60
Standardization session of ... 66
Steam-table-research session ... 62
Stoker session of ... 62
Student session of ... 60
A.S.M.E. Boiler Code. *See* Boiler Code, A.S.M.E.
A.S.M.E., coöperation of in industrial mobilization ... 664
Council urges prompt trial of indicted engineers ... 53
Medal for 1923, John R. Freeman recommended for ... 433
meeting at Montreal to be popular ... 507
research committee on fluid meters, progress report of ... 661
A.S.M.E. Spring Meeting, Montreal, Canada, sessions at ... 430
Business meeting ... 424
First power session ... 424
Fuels session ... 426
General session ... 428
Machine-shop session ... 427
Management session ... 424
Port-development session ... 425
Public hearing and committee meetings ... 429
Railroad session ... 425
Second power session ... 425
Textile session ... 425
Aster engine valve gear ... 189
"Atmos" high-pressure boiler ... 253
ATWOOD, WM. G. ... 544
Autogiro, Lacierva ... 358
Automobile, copper-cooled ... 126
headlight-testing specifications approved by A.E.S.C. ... 77, 209
wheels, welded pressed-steel ... 497
Automobiles. *See* Motor cars.
Automotive Engineers, Society of, meeting ... 211
Automotive engines, blended fuels for ... 577
Auto-thermal boiler feed ... 496
Aviation, civil, control of ... 571
commercial, in America ... 70
motor, Farman ... 123
AWBERY, J. H. ... 305
AYRES, COLONEL. Labor shortage, not credit stringency to check prosperity ... 621

B

Babcock & Wilcox boilers ... 438, 496
BACH ... 363
BAILEY, ALEX. D. Development and use of modern chain grate (D) ... 21
BAILEY, E. G. High-temperature and high-pressure steam lines (D) ... 293
Orifice coefficients—data and results of tests (D) ... 347
Balance, experimental sensitive ... 601
Balancing machines, recent developments in ... 353
Ball bearings ... 660
bearings, international standardization of ... 726
"Balloon" tire ... 363
BARBILLION ... 545
BARBOT ... 358
BARNARD, D. P. ... 601
BARNES, J. A. High-temperature and high-pressure steam lines (D) ... 293
BARRE, H. A. Hydroelectric development by the Southern California Edison Co. (D) ... 447
BARRETT, I. L. High-temperature and high-pressure steam lines (D) ... 294
Bars and plates, wrought-iron, A.E.S.C. approves specifications for ... 622
strength of, torsional ... 45
BARTH, CARL G. Design of milling cutters (D) ... 267
BARTON, GEO. S. Machine-tool industry in paper manufacturing (D) ... 428
BARUS, CARL ... 310
BASCOM, F. P. AND MCDOWELL, J. C. Bleachery engineering and operation (D) ... 425
BASFORD, GEORGE M. Schools for apprentices and shop training (D) ... 179
Bassler fuel-oil meter ... 492
BATES, HARRY H. ... 53
BATSON, R. G. C. ... 433
BAUMANN ... 661
Baumann system of blading ... 430
Bearing metal, thermit ... 435
roller, Stafford, for railway cars ... 362
vibration ... 711
Bearings, ball ... 660
BEAUMONT, R. H. Ash-handling methods (D) ... 92
BELL, GEORGE G. Ash-handling methods (D) ... 92

Effect of feedwater heating on plant economy 417
Feed heating for high thermal efficiency (D) 66
Belt, conveyor, steel, at a stone-pulverizing plant 660
transmission 187
Belts, steel, with compressed spruce pulleys, performance tests of 246
Bench tool 492
Bending stresses in curved tubes of rectangular cross-section 582
Bends, pipe, elasticity of 159
Bengough, Guy D. 542
Benzol 712
Benzon, Geo. H. Design and construction of large machine tools 215
Bergeron, L. 309
Berland-Caufourier solar power plant 364
Berland solar receiver 364
Berthelot 663
Bessón, Marcel, H-5 quadruplane flying boat 306
Bethel, C. 711
Bethlehem Diesel engine 545
Bibby, Falk-, flexible couplings 707
Bibliographies, technical 149, 622
Bigelow, Carle M. Control of lumber-cutting waste and production 42
Birch, H. E. Material-handling problems in pier design (D) 530
Bjerrum 663, 712
Blackburn, A. H. Underfeed stokers (D) 22
Blade fitting, steam turbines 710
Blast, drying of 192
furnaces 662
oxygen enriching of 192
superheating of 192
Blended fuels 615
fuels for automotive engines 577
Blizard, John 127, 592
Blomquist, J. V. 253
Blower, fan-type, multi-stage 48
kiln 593
Boiler, "Atmos" high-pressure 253
Code, A.S.M.E., work of the 137, 261, 318, 379, 443, 505, 612, 719
Code regulations for India, new 722
Code, 1923, second revision of 261, 379, 713
Code, modifications of revisions of 261
Code, new revisions of 263
Code, locomotive, revisions on 273
Committee, Admiralty 438
cylindrical and water-tube, combined 599
design 189
electric 54
end plates 128
fallacy 127
feed, auto-thermal 496
-feeding device 496
fuel, with Keith and Whatmough carburetor 252
-furnace design 299, (C) 560
-furnace refractories 210
furnaces, modern 596
height of 52
Hudson 599
leaks 365
locomotive, proportions, graphical analysis of 190
magazine-feed 127
Manufacturers' Association, American, meeting of the 327
old, strength of 128
plants in the United States and Germany, large 653
Scotch marine, efficiency of the 220, (C) 442
steam, steam and 128
Stirling, type W, tests of a 25
tests, the accuracy of (C) 69
-tube failures 126
tubes, slag on 53
water-tube, Kestner 495
water-tube, Yarrow 494
with rotating tubes 253
1200-lb. pressure 496
Boilers, Chinese Board specifies A.S.M.E. 79
house-heating 592
power, proposed code for care of 368
water-tube 438, 655
water-tube, troubles 365
Bolt heads, standards for round unslotted 725
threads, strength as affected by inaccurate machining 583
Bolts and nuts, wrench-head, proposed standard sizes of 702
machine screws and commercially tapped holes, standard screw threads for 498
Bone, Prof. Wm. A. 592
Book notes 80, 147, 212, 272, 328, 397, 454, 567, 624, 670, 727
Borers, marine 122
Bosler, Lester C. Fewer coal sizes (D) 23
Boston gives M.I.T. students unusual opportunity 79
Bouton, Geo. I. Overfeed stokers of the inclined type 17
Bradford Road Gas Works 656
Bradley, W. F. 708
Bradshaw 434
Brake, air, Kunze-Knorr 439
four-wheel, hydraulic, for motor cars 709
Brass castings, pressure system of pouring phosphorus in 591
Brazil, International Engineering Congress in, Calvin W. Rice envoy to 48
Bremner, A. J. 72
Brier, H. 305
Brinell hardness 306
Brinton, C. C. Balancing machines (D) 433
Bristol Aeroplane Company 427
British locomotive practice 309
Oxygen Company 128
Britton, John A. Requisites for success in management work 305
Brock, R. E. 619
Broido, B. N. High-temperature and high-pressure steam lines 289, (C) 130
Bronze, aluminum 389
aluminum, as an engineering material 122
coronium 283
manganese 436
Brooks, C. E. Recent developments of the motor coach 706
Brown, Fay C., appointed acting director of U. S. Bureau of Standards 463
Brown, Robert Gilman, new president of Institution of Mining and Metallurgy, England 213
Brownlie, David. The accuracy of boiler tests (C) 69
Bruay Mines, France 183
Bruntons marine engine 123
Brush-Ljungström steam turbine 431
Bryans, W. R. Mathematical determination of the modulus of elasticity (C) 136
Bubbles, glue 310
Buckets, turbine, chromized nickel-steel 359
Buckingham, Earle. Testing involute spur gears (D) 81
Buckingham, Edgar 306, 434
Buell, W. C., Jr. 122
Bullermann 709
Bureau of Mines 307
Bureau of Standards, cause of explosion at 666
Dr. G. K. Burgess becomes director of 392
report of director of 325
report on welded vessels to come later 265
steam research at the 168
Burgess, Dr. George K., becomes director of Bureau of Standards 392
Burke, Henry M. Sectionalized stoker control (D) 23
Burlingame, Luther D. An American screw-thread series 506
Burner, gas-furnace carburetor-type 252
Lowe 545
pulverized-coal, of the Allgemeine Elektricitaets Gesellschaft 654
Burton, Frank. The fundamentals of city zoning 667
Business cycles and unemployment 321

C

Caetani, Prince Gelasio, address of, to American Engineering Council at second annual meeting 142
engineer, heads Italian Embassy 74
welcomed by Engineering Council 142
Calculating the diameters of open-belt speed cones, methods of (C) 387
Calculator, slide-rule, Otis King 594
Calder, John. Management and the human problem 618
Callendar 314
Calorizing 307
Cameron, Edward H. 189
Cameron, Jas. A. Plant equipment for paper-making machinery (D) 428
Campbell, Andrew C. 708
Campbell, W. B. Elasticity of pipe bends (D) 164
Canada, water-power resources of 395
Canadian and American engineers coöperate to make A.S.M.E. meeting a success 424
Pacific Railway, Montreal, steel-car construction at the Angus shops of 349
Carbon monoxide meter 711
Carbonized clay 121
Carburetor, Keith-Whatmough 251
Carburetors and vaporizing devices, holes needed in 123
Cardullo, F. E. Testing involute spur gears (D) 81
Care of power boilers, proposed code for 368
Carhart, Alfred B. Operators versus automatic control of stokers (D) 23
Carnegie Institute of Technology 307
Carpenter, Dane A. Extension and correspondence schools (D) 179
Car, copper-cooled, Chevrolet 126
freight, cast-steel underframe 710
railroad, Diesel-electric 256
Cars, freight, reinforced-concrete 710
London Electric Railway 311
modern subway, and their operation 647
railway, Stafford roller bearing for 362
sleeping, all-steel, European 191
steel-, construction at the Angus shops of the C. P. R., Montreal 349
Carter, W. 48
Caruelle water elevators 185
Cary, Albert A. Fuel for stokers (D) 23
Case-hardening 309
Cassidy, T. Lumber dry kilns (D) 234
Cast iron, gray, pearlitic 656
pearlitic 491
Casting hubs entirely in cores 308
Castings, die 591
gray-iron, specification for 491
Caufourier-Berland solar power plant 364
Caufourier, P. 364
Cement, disintegration in sea water 544
Central-station steam plant, margins of possible improvement in 685
Centrifugal concrete pipe 58
pump, theory of 309
ventilators 184
Centrifugally made concrete poles 436
Chain grate, development and use of modern 14
-type water elevators 185
Chains, roller, and sprockets 500
Char, lignite: its production and possibilities 282
Chase, Herbert 363, 591
Chase Metal Works 307
Chattanooga, southern sections hold regional meeting at 723
Chatterton, Sir Alfred 185
Chemical Engineers, American Institute of, meeting 210
Society, American meeting of the 327
Warfare Service—its activities and achievements 643
Chevrolet copper-cooled car 126
Cherub aero engines, 18-hp. 309
Chimney sizes, determination of 531
Chinese Board specifies A.S.M.E. boilers 79
Chip formation by milling cutters 586
Christie, A. G. Determination of chimney sizes (D) 537
Feed heating for high thermal efficiency (D) 66
Progress in the art of power development 133
Chromized iron 360
nickel-steel turbine buckets 359
Chromizing 359
"Ciment fondu" 544
Churchill, W. L. The mechanical engineer in management of woodworking industries 692
Cincinnati meeting of F.A.E.S. executive board 324
City zoning, fundamentals of 667
Civil aviation, control of 571
Civil Engineers, American Society of, meeting 211, 396
engineers vote against joining federation 326
Clarke, C. W. E. 52
Clark, R. 438
Clark, Wallace. Management engineering in the paper industry (D) 424
Claude 600
Claude, Georges 305

Clay, carbonized ... 121
Clock, polytopical ... 314
Clutch, Diesel-engine, used in the German submarine "U-117" ... 113
Clyde oil-fuel burning system ... 491
Coach, motor, recent developments of ... 463
Coal ash ... 544
brown, German ... 654
coke, and by-products, sampling and analysis of, review of ... 454
factors in the spontaneous combustion of ... 691
froth flotation of ... 657
handling by suction ... 361
industry, overdeveloped, cannot furnish cheap plentiful coal, editorial ... 206
pulverized, explosive tendencies of ... 592
pulverized, use in open-hearth furnaces ... 651
research, terminology in ... 308
spontaneous combustion of, factors in ... 691
-storage campaign, progress of ... 397
storage, domestic, Storrs plan of ... 324
storage, objects and methods of F.A.E.S. committee on ... 508
-storage survey ... 324
-storage survey nears completion ... 616
store for winter now ... 391
tempering ... 250, 657
water and man power of western slope of southern Appalachian mountains ... 637
Coast to coast by air ... 390
Coatesville Boiler Works ... 363
Codes. *See* name of code.
COES, H. V. Immigration policy places new responsibilities on the engineer ... 390
Material-handling problems in pier design (D) ... 530
COFFEY, B. H. Design of cooling towers (D) ... 102
Coffin, Foundation, the Charles A. ... 140
Foundation makes first award ... 508
COFFIN, HOWARD E. Commercial aviation in America ... 70
portrait of ... 70
Coke breeze ... 656
by-product ... 592
Cold as method of energy accumulation ... 711
generation and utilization of ... 305
COLE, F. J. ... 190
COLEMAN, L. G. ... 256
COLLINS, ARTHUR S. ... 185
Colors for traffic signals, sectional committee on, organized under A.E.S.C. procedure ... 77
COLVIN, FRED H. ... 363
Combustion, double ... 189
spontaneous, of coal, factors in ... 691
surface ... 592
Commercial aviation in America ... 70
Compression of gases, safety engineering in the ... 242
Compressor, ammonia ... 129
ammonia, oscillating ... 312
Compressors, air, explosions in ... 490
Concrete, interior temperatures in ... 705
pipe, centrifugal ... 58
poles, centrifugally made ... 436
reinforced-, freight cars ... 710
Condenser, ammonia, reports ... 191
extraction pump with glands under pressure ... 255
purging ... 191
tubes ... 307
tubes, corrosion of ... 542
tubes, glass ... 543
Condensers, air-cooled ... 253
surface ... 52
tubular ... 129
vapor refrigerating, for steam turbines ... 128
Conditioned air in gas producers ... 662
Conductivity of liquids, thermal ... 479
Cone, ball and, hardness testing ... 433
pressure ... 433
Conical-bottom tank ... 547
Consolidated Gas and Electric Company ... 361
CONSTANTINESCO ... 55, 252
COOK, PROF. GILBERT ... 708
COOK, STANLEY S. ... 710
Coolers, air, surface ... 435
COOLEY, E. S. Boiler-furnace design (D) ... 303
COOLEY, MORTIMER E., 1923 president of American Engineering Council ... 142
portrait of ... 142
Cooling of turbine generators ... 435
oil for ... 434
towers, design of ... 99
Compressed spruce pulleys, performance tests of steel belts with ... 246
Conductivity, thermal, of liquids ... 479
Conduits, closed, Gibson method and apparatus for measuring flow of water in ... 679
COONLEY, HOWARD. Management and sales policies ... 620
Copper-cooled car, Chevrolet ... 126
Cores, casting hubs entirely in ... 308
Cormack, P. ... 51
Cornell University, practical laboratory and drawing-room course in industrial engineering at ... 475
CORNWELL, R. A. ... 662
Coronium bronze ... 436
CORP, CHAS. IVES ... 250
Correspondence ... 69, 136, 202, 259, 317, 387, 442, 560, 611
and extension schools ... 169
Corrosion, nickel ... 591
of condenser tubes ... 542
problems, note on ... 98
tests of metals in mine waters ... 307
CORSE, W. M. Aluminum bronze as an engineering material ... 283
COSTER, EDWARD L. Design of segmental and sector counterbalance weights (C) ... 611
Costs in building experimental machines ... 363
COTTON, ALFRED. Determination of chimney sizes ... 531
COTTON, ALFRED AND HUNTER, JOHN. Methods of ash handling ... 83
Cotton-goods plant, steam in ... 546
Counterbalance weights, design of segmental and sector (C) ... 611
Couplings, flexible, Falk-Bibby ... 707
COWIE, F. W. The port of Montreal ... 521
COX, IVOR R. ... 661
CRAGOE, C. S. ... 313, 547
CRAIN, J. J. Hydraulic transmissions (D) ... 241
CRAMER, ROBERT. Commercial economy of high pressure and high superheat in central station (D) ... 65
Elasticity of pipe bends (D) ... 164
Crane ship No. 1, U. S. Navy, an achievement ... 333
CRANE, J. B. Combustion-chamber design (D) ... 23
Crankshafts, torsion of ... 96
CROCKER, SABIN, AND SANFORD, S. S. Elasticity of pipe bends ... 159
CROMMELIN, C. A. ... 305
CROSBY ... 438
Cross-flow impulse turbine ... 275
CROWE, SIR E. T. F. ... 131
CROZIER, H. W., STIGEN, J., and NAGEL, C. E. Diesel-engine progress on the Pacific coast ... 421
Cryogenic laboratory, Leyden ... 305
Culm, anthracite ... 361
Cupolas ... 662
CURTIS, F. A. Standardization of paper and printing machinery (D) ... 67
Curtiss Company ... 358
Curved tubes of rectangular cross-section, bending stresses in ... 582
CUTLER, A. A. Lumber dry kilns (D) ... 233
Cutter-grinding machinery ... 124
Cutters, milling, chip formation by ... 586
milling, effect of variations in design of, on power requirements and capacity ... 155
Cutting metal, power required for ... 35
strokes, pull or push ... 188
Czechoslovakia and Egypt, engineers from, study American methods ... 71
Czechoslovakia's National Standardization Association the seventeenth to be organized ... 668

D

DALOZ ... 49
Dalton's law ... 703
Damper gear ... 129
DARLINGTON, F. Hydroelectric powers in Canada (D) ... 416
DAVID, DONALD K. The retailer's point of view ... 620
DAVIDSON, F. ... 131
DAVIS', A. P., dismissal a blow to sound government ... 562
DAVIS, F. W. ... 601
Davon microtelescope ... 131
DAWLEY, C. A. Orifice coefficients—data and results of tests (D) ... 347
DEAN, PETER PAYNE. Sectionalization and remote control of high-pressure steam lines ... 483
DECROW, DAVID A. dies ... 266
Delaware, Lackawanna & Western ... 311
De Margerie, Dr. Emmanuel ... 445
DEMING, GEORGE M. Strength of bolt threads as affected by inaccurate machining ... 583
DENECKE, PROF. O. ... 594
DERCLAVE, M. ... 192
Determination of chimney sizes ... 531
Detroit engineers discuss municipal problems ... 667
DEVRIES, R. P. ... 433
DEWAR ... 310
"Dewoitine" ... 358
Dewpoints of gasoline-air mixtures ... 601
Diaphragm of pressure gage, minute flexure of ... 661
DICKINSON, H. W., of South Kensington Museum visits the United States ... 392
Dictionary of Applied Physics, review of ... 147
Die-casting alloy, zinc-base ... 250
castings ... 591
Diesel-electric railroad car ... 256
engine, Bethlehem ... 545
-engine clutch used in German submarine "U-117" ... 113
engine, compressorless, fuel-injection valves for ... 251
-engine progress on the Pacific coast ... 421
-engine dredge ... 439
engine, Knudsen ... 593
power, converting steamship to ... 660
Differential, Andrade, for motor cars ... 438
Diffusion of metals ... 359
DILLER, H. E. ... 308
Dimensions, physical ... 493
Distance pieces ... 51
Doctor of Engineering "Honoris Causa" ... 314
Doehler Die Casting Company ... 250
Dorman wave-power-driven rock drill ... 55
DOWLING, JOHN J. ... 661
DRABELLE, JOHN M. The chain-grate stoker (D) ... 21
Draft requirements ... 250
Drawing-room and laboratory course in industrial engineering in Cornell University, a practical ... 475
Dredge, Diesel-engine ... 439
Drier, continuous-process ... 705
Drills, air, and hammers, testing ... 542
rock, wave-power-diven, Dorman ... 55
Dry kilns, lumber ... 110
-vacuum pumps, size selection of ... 103
Drying equipment in an artificial-leather plant ... 600
of the blast ... 192
DUBRUL, ERNEST F. Economic features of machine-tool industry ... 151
Engineering and economics (D) ... 11
DUNN, GANO, appointed honorary secretary of I.E.E. in the U. S. ... 140
Duralumin ... 185, 706
Dust separation by gravity ... 57
DWIGHT, COL. ARTHUR S., elected honorary member of Chemical, Metallurgical and Mining Society of South Africa ... 140

E

EARNSHAW, GEO. M. ... 660
EASTON, RANKIN. Ash-handling methods (D) ... 92
EATON, G. M. Balancing machines (D) ... 427
Helical gears on railway work (D) ... 61
EBELMEN ... 657
Economic and engineering session of A.S.M.E. Annual Meeting, discussion at ... 10
Economizers ... 52, 190
superheaters and ... 655
Edison Medal for 1922 awarded Dr. Robert A. Millikan ... 140
EDMONDS, HOWARD M. ... 58
Education, engineering, hampered by New York licensing law ... 664
industrial, as represented in schools ... 175
Efficiency, high thermal, feed heating for ... 105
Egypt and Czechoslovakia, engineers from study American methods ... 71
EICHELBERG ... 314
Eight-in-line engines ... 362
Elastic limit of metals, acoustic method of ... 497
Elasticity, modulus of, mathematical determination ... (C) 136, (C) 259, (C) 317
of pipe bends ... 159
Electric boiler ... 54
drive in sugar-manufacturing plant ... 127
locomotive, 4000-hp ... 366

plants, small, and large systems 462
-railway motor pinions, stresses in 93
steam generators 54
Electrical and industrial West 457
engineering school of Cornell University, Paul M. Lincoln new dean of 79
Engineers, American Institute of, meeting 271, 450
Engineers, Institution of, appoints Gano Dunn as honorary secretary in the U. S. 140
Electrification, Mikado locomotives vs. 311
railway, facts favoring 326
Electrochemical Society, American, annual spring meeting of 452
Electron metal 49, 706
metal, research work on 185
Elevators, water, Caruelle 185
water, chain-type 185
Elinvar 591
ELY, FRED W. Surge-tank problem (C) 205
ELY, S. B. AND RITTMAN, W. F. Power and fuel consumption of iron and steel industries of Pittsburgh district 401
EMANAUD, M. 599
Endurance-test data and their interpretation 579
Energy 493
accumulation, cold as method of 711
ENGELMANN, W. F. 58
Engine, acetylene 708
aero, Stromboli 594
aero, 18-hp. Cherub 309
Aster, valve gear 189
cycle, for light planes 434
Diesel-, clutch of German submarine "U-117" 113
Diesel, Knudsen 593
Diesel, progress of on Pacific coast 421
eight-in-line 362
eight-in-line, Packard 493
gasoline, high-compression 187
marine, Bruntons 123
oil, high-pressure, with airless fuel injection 593
rotary, three-cylinder, Statax 251
steam, new theory of 440
Engineer and art 141
immigration policy places new responsibilities on the 390
in public affairs 393
in public life 208
mechanical, in the management of the wood-working industries 692
of tomorrow 138
Engineer's job 444
Engineers, indicted, A.S.M.E. Council urges prompt trial of 507
of Detroit discuss municipal problems 667
women, conference in England 392
Engineering achievements of Pacific coast shape program for regional meeting 446
and economics session of A.S.M.E. Annual Meeting, discussion at 10
Congress, International, 1926 139
Council, Caetani welcomed by 142
courses, fluctuations in student enrollment in 449
division, National Research Council, elects officers 266
division, National Research Council, research committee of 559
education 720
education hampered by New York licensing law 664
Foundation, progress report of 724
Index 137-EI, 101-EI, 111-EI, 111-EI, 117-EI, 115-EI, 117-EI, 107-EI, 115-EI, 113-EI, 117-EI, 143-EI
Late items to 82, 150, 214, 274, 332, 400, 456, 512, 570, 626, 672, 730
Index and Library combine to serve engineer 393
Index, improvements in the 71
in India 392
Institute of Canada elects successor to president St. Laurent 326
museum requires interest and aid of entire profession 138
progress in autumn of 1923 665
research. *See* Research, engineering.
Engines. *See* also Motors.
automotive, blended fuels for 577
internal-combustion, test code for 193
oil, proposed classification of 234
English Electric Company 358
Enriched air 306
air in gas producers 662
Enriching air 305
oxygen-, of the blast 192
Entropy of saturated steam: its relation to specific volume (C) 136
Ericsson Tablet 726
ESTABROOK, M. Testing involute spur gears 33
Ethyl chloride 305
Ethylene 712
EVANS, F. C. 128
EVANS, P. WILSON. 191
Evaporator, flash 54
vapor recompression system for 192
EWING 661
Executive, problems that confront an 617
Experimental machines, costs in building 363
Explosions in air compressors 490
Export policy, German 58
Extensimeter 661
Extension and correspondence schools 169
Extraction pump with glands under pressure 255
Eyes and heads, protection of 326
Eyesight Conservation Council 269

F

Factory organization 309
Falk-Bibby flexible couplings 707
Farman aviation motor 123
Fatigue of metals investigation, progress in 323
of metals, notes on the 695
Fauser synthetic ammonia process 600
Federal Power Commission reports on distribution of license fees for 1922 508
specifications board and industry, cooperation between promoted by A.E.S.C. 146
Federated American Engineering Society, news of the 75, 142, 208, 269, 324, 397, 508, 616
civil engineers vote against joining 326
committee on coal storage, objects and methods of the 508
Feed heating for high thermal efficiency 105
Feedwater heating, effect on plant economy 417
FERRIS, WALTER. Hydraulic-transmission, variable-speed drive for machine tools and manufacturing processes 238
Fiber in metals 41
FICHET 657
FINLAY, W. S. Hydroelectric power for metropolitan district (D) 323
Fits, machined, standard tolerances and allowances for 699
FLAGLE, W. W. 705
Flames, high velocity of 190
Flanges, steel, for high pressures, standards for definitely planned 725
Flash evaporator 54
Flotation, froth, coal 657
Flow of gases, effect of pulsations on 223
of gases in furnaces 596
of water in closed conduits, Gibson method and apparatus for measuring 679
of water through pipe 437
superheated-steam, velocity of 594
weir 706
Flue gases, loss of heat in 440
Fluid meters, progress report of A.S.M.E. research committee on 135
meters, research sub-committee on, presents reports 429
Flying boat, quadruplane, Marcel Besson H-5 306
control, Loening 184
high, Rateau scheme for 121
machine, Lacierva "Autogiro" 358
FOEPPL 45
FORD, JAMES A. 51
FORD, LOUIS R. 660
Forest products session of 1922 A.S.M.E. Annual Meeting, discussion at 233
Forging steel tubing 313
Forgings, hollow-drawn, note on 678
Formulas for computing economies of labor-saving equipment 564
FORTUNE, J. R. Underfeed and overfeed stokers (D) 22
Foundation function 248
Foundations, vibrations in 248
Foundrymen, British, Institution of, Manchester Conference of 491
Foundrymen's Association, American, annual convention of 451
Congress, results of first international 666
Four C's guide post 323
France, American locomotives in 710
FRANCIS, WALTER J. elected president E.I.C. 326
FRANKENHOFF, C. A. Boiler-furnace design (C) 560
FREELAND, H. G. 660
FREEMAN, JOHN R. Hydroelectric powers in Canada (D) 416
recommended for A.S.M.E. Medal for 1923 507
FREEMAN, L. D. Steam distribution in the locomotive (D) 63
FREER, W. G. Marine stokers (D) 24
Freezing raw water 56
FREIDAY, J. A. Elasticity of pipe bends (D) 164
Freight car, reinforced-concrete 710
-car underframe, cast-steel 710
French engineering society celebrates seventy-fifth anniversary 445
FRENCH, H. J. 360
FROST, V. M. Boiler-furnace design (D) 303
Fuel, alcohol as 188
and power consumption of iron and steel industries of Pittsburgh district 401
oil, measurement of, on motorships 492
Fuels, blended 615
blended, for automotive engines 577
engine, use of acetone in composite 578
session, discussion on stokers at 21
FUNK, NEVIN E. Ash-handling methods (D) 92
Boiler control (D) 487
Commercial economy of high pressure and high superheat in central station (D) 65
Determination of chimney sizes (D) 537
Feed heating for high thermal efficiency (D) 66
FURMAN, F. DER. The first steam locomotive run on rails in America (C) 560
Furnace design, boiler 290
open-hearth, Loftus 125
temperatures 190
Furnaces, flow of gases in 596
modern boiler 596
oil-fired, Geissinger automatic temperature control for 706
open-hearth, use of pulverized coal in 651

G

GABY, F. G. Hydroelectric developments in Ontario 410
GAGE, R. G. Recent developments of the motor coach (D) 467
Gage, pressure, minute flexure of diaphragm of 661
Gas producer, ash-fusion type of 657
producer, enriched air in 662
producer, Treat 49
turbine 488
Gases and vapors, specific heats of 663
compression of, safety engineering in the 242
flow of, effect of pulsations on 223
flue, loss of heat in 440
methods of liquefying 305
removal of solid and liquid particles from 131
safety engineering in compression of 242
variation of specific heat of, with temperature 712
Gashouse tar 361
Gasoline-air mixtures, dewpoints of 601
motor truck, Zeitler, for railway-car bodies 129
Gear cases, railway-motor 711
crown-wheel, Hotchkiss 309
damper 129
grinding 362
herringbone-, planer 707
Manufacturers Association, American, meeting 396
noises 50
reversing, for marine turbine 124
-tooth errors 50
variable, for motor cars 252
Geared turbines, discarding 125
Gearing 710
testing, Van West portable set for 256
worm, power of 363
Gears, analyzing 51
epicyclic 51
herringbone, standards for general commercial use 145
involute spur, testing 32
tangent-rack, hobbing 309

Geissinger, H. G. 706
Geissinger automatic temperature control for oil-fired furnaces 706
Gendrin, Morris 310
General Electric Company 54
Generator output, net, definition of 563
water-wheel, Shawinigan Falls 436
Generators, turbine, cooling of 435
turbo- 189
Genkin, D. 187
German export policy 58
submarine "U-117," Diesel-engine clutch used in the 113
three-cylinder Mikado locomotive 439
Germany, oxygen and nitrogen industries in 306
United States and, large boiler plants in 653
Gibson method and apparatus for measuring the flow of water in closed conduits 679
Gibson, Norman R. Gibson method and apparatus for measuring flow of water in closed conduits 679
Surge-tank problem (C) 204
Gilbreth, F. B. Standardization of paper and printing machinery (D) 67
Teaching of industrial engineering (D) 478
Glass, W. C. Standardization of paper and printing machinery (D) 67
Glass condenser tubes 543
industry 656
Glider notes 358
Glue bubbles 310
Gnosspelius, Maj. O. T. 490
Gnosspelius light plane 490
Goldschmidt, Th. 436
Goods and money, making 4
Gore, Prof. Bancroft 361
Government departments, reorganization of 270
Governmental positions of salaries, passage of bill for reclassification of 270
Graphical and mathematical symbols and abbreviations, standardization of 394
analysis of locomotive boiler proportions 190
Grate, cascade, Vesuvio 654
chain, development and use of modern 14
Grates, traveling 654
Graves, B. P. and Hall, J. A. Effect of variations in design of milling cutters on power requirements and capacity 155
Gray, Capt. J. 434
Gray, Prof. James Gordon 434
Gray-iron castings, specification for 491
Gray stabilizer 434
Greene, Arthur M., Jr. Review of Kent's Mechanical Engineers' Handbook 567
Gregory, P. S. Hydroelectric powers in Canada (D) 416
Griev 251
Griffiths, Edgar A. 305
Griffiths, Ezer 305
Grinding cutters, machinery for 124
gear 362
Grison, M. 186
Gröber 589
Gronwall, Dr. Assar 309
Grosvenor, W. M. Design of cooling towers (D) 102
Groume Grjimailo, W. E. 596
Gruse, W. A. 601
Guelbaum, David. Mathematical determination of modulus of elasticity (C) 317
Gun, long-range, German 709
Guy's British patent (steam turbine) 661
Gyroscope in aircraft instruments 434

H

Haar, Selby. Modern subway cars and their operation 647
Haber 600
Hadden, Walter 55
Hall, James A. and Graves, B. P. Effect of variations in design of milling cutters on power requirements and capacity 155
Halmos, Eugene E. Surge-tank problem (C) 204
Halpin 599
Hammer-spray injection system 187
test, hydrostatic 541
water, eliminating 308
Hammers, air drills and, testing 542
power-plant, cost of operating 48
Hankins, G. A. 433
Hansen, F. J. M. 251
Hanson, O. I. 440
Hanszel, Dr. 185
Hardin, C. M. Feed heating for high thermal efficiency (D) 66
Harding, Warren Gamaliel, in memoriam to 562
Hardness, Brinell 433
quality of 432
scratch, test for 433
Tests Research Committee 433
Harker, Dr. J. A. 305
Harrington, John Lyle. Engineering and economics (D) 13
Harrington, Joseph 361
Harris, Henry C. 184
Hasbrouck 187
Hatfield, W. H. 656
Hathcock, Bernard D. 590
Hausen, H. 538
Headlight, automobile, testing specifications approved by A.E.S.C. 77
-testing specifications, automobile, approved by A.E.S.C. 209
Heads and eyes, protection of 326
Heat balance, power-station 495
-balance system 53
loss, internal-combustion 313
loss of, in flue gases 440
specific. *See* Specific heat.
measurements 131
transfer through walls 724
transmission 131
transmission, Nusselt coefficients of 589
true 589
Heating and Ventilating Engineers, American Society of, meeting 272
feed water for high thermal efficiency 105
feedwater, effect of on plant economy 417
house-, boilers for 592
Heaton, H. C. Stratification of coal in bunkers 23
Heavy-traffic service, long-haul, the airship for 235
Heck, R. C. H. Steam distribution in the locomotive (D) 63
Heindlhofer, K. and Sjovall, H. Endurance test data and their interpretation 579
Helander, Linn. Feed water heating for high thermal efficiency 105
Heldt, P. M. 362
Helium, liquefaction of 305
Hemlen, A. A. Lumber dry kilns (D) 234
Henderson, H. L. Lumber dry kilns (D) 234
Hendrickson, F. K. Helical gears for planer drivers (D) 61
Hendrickson, G. S. Orifice coefficients—data and results of tests (D) 347
Henley, J. B. 705
Henning 712
Henry-Paul type airplane 121
Herb, Charles O. 124
Herbert, Alfred 439
Hering, Rudolph, dean of sanitary engineers, dies 445
Herr, E. M. The human problem in industry 6
Herringbone-gear planer 707
gear standards for general commercial use 145
Herrmann, K. L. 50
Herschel, Clemens 663
Herter, C. H. Economic thickness of insulation in refrigerating field (D) 61
Hesselman, J. K. E. 593
Heylandt liquid-air plant 305
Heymans, Paul, and Kimball, A. L. Stresses in electric-railway motor pinions 93
Hibbard, Henry D. Commercial economy of high pressure and high superheat in central station (D) 126
Hibbard, H. Wade. Industrial-engineering courses in universities and colleges (D) 64
High-pressure and high-temperature steam lines 478
-pressure steam lines, sectionalization and remote control of 289
-temperature alloys, Dr. M. A. Hunter presents facts about at Newark meeting 266
-temperature and high-pressure steam lines, thermal efficiency, feed heating for 289
Hill, A. S. Lumber dry kilns (D) 105
Hill, Halbert Paul 234
Hirsch, R. 56
Hob making 314
Hobbing tangent-rack gears 124
Hobson non-pinker 309
Hodgkinson, Francis. Commercial economy of high pressure and high superheat in central station (D) 188
Elasticity of pipe bends (D) 65
Feed heating for high thermal efficiency (D) 164
Hodgson, John L. Effect of pulsations on flow of gases (D) 66
Orifice coefficients—data and results of tests (D) 229
Hogan, J. P. Hydroelectric power for metropolitan district (D) 347
Hogg, J. W. Orifice coefficients—data and results of tests (D) 323
Hogg, T. H. Surge-tank problem (C) 347
Holborn 13
Holes, commercially tapped, bolts, machine screws and nuts, standard screw threads for 204
needed in carburetors and vaporizing devices 712
Hollis, Ira N. Plain speaking 498
portrait of 123
Holloway, J. H. 264
Hood, O. P. Factors in the spontaneous combustion of coal 264
Lignite char: its production and possibilities 187
282, (C) 691
Smoke abatement (D) 426
Hooker, Peter 23
Hoover, Secretary, advocates uniform specifications in making Government purchases 594
favors sectional control of interstate power 510
Hopping, E. L. Determination of chimney sizes (D) 721
Horne, Geo. A. 337
Horner, Fred 129
Hornsnaill, W. O. 492
Horstkotte, E. M. 309
Hotchkiss crown-wheel gear 54
House-heating boilers 309
Houser, A. M. Commercial economy of high pressure and high superheat in central station (D) 592
Hovey, Otis E. 64
Howard, James E. 662
Howarth, H. A. S. Modern hydraulic turbines of large capacity (D) 599
Howe, H. E., treasure of American Engineering Council, portrait of 474
Howes, F. J. Surge-tank problem (C) 142
Hubs, casting entirely in cores 294
Hudson boiler 308
Huertay 599
Hughes, F. S. The financial statement as a basis for extending credit 657
Human abilities, personnel methods in the recognition and classification of 621
problem in industry 134
Hume process 6
Humps, Spence 58
Hunt, Captain Robert Woolston, dies 128
portrait of 509
Hunter, John and Cotton, Alfred. Methods of ash handling 509
Hunter, Dr. M. A. presents facts about high-temperature alloys at Newark meeting 83
Huntington, W. Va., refinery and rolling mill for monel metal at 266
Hurbotter, H. A. 285
Hutchins, Edward. Requirements of pulp- and paper-mill repair shops (D) 187
Hydraulic and wave transmission, bibliographies on 428
Hydraulic four-wheel brakes for motor cars 622
-transmission variable-speed drive for machine tools and manufacturing processes 709
turbines, calorimetric method of determining efficiency 238
turbines, modern, of high capacity 545
correction to above paper 468
Hydroelectric developments in Ontario 563
possibilities of Quebec 410
power for metropolitan district 407
Hydrogen, manufacture of 322
Hydrostatic hammer test 305
541

I

Iddles, Alfred 546
Boiler control (D) 487
Imlay, Lorin E. Hydroelectric power for metropolitan district 323

Immigration policy places new responsibilities on the engineer ... 390
Impulse turbine, cross-flow ... 275
Indentation, ball ... 433
tests, static ... 433
Index to Volume 44 of MECHANICAL ENGINEERING, note on ... 213
India, engineering in ... 392
new boiler code regulations for ... 722
Indicator diagrams ... 310
Industrial and electrical West ... 457
education as represented in schools ... 175
engineering at Cornell University, practical laboratory and drawing room course in ... 475
engineers, society of ... 396
machinery, Asiatic markets for ... 265
management, phases of ... 617
mobilization, cooperation of A.S.M.E. in ... 664
mobilization, ordnance ... 627
safety codes, development of ... 356
Industries, means for vocational training for the ... 169
Industry, the human problem in ... 6
Inflammable liquids, pneumatic handling of, Mauclere system of ... 130
Ingénieurs Civils de France, Société des, celebrate seventy-fifth anniversary ... 445
Ingot corner segregation in a nickel-chrome steel ... 125
Injection, airless fuel, high-pressure oil engine with ... 593
fuel-, valves for compressorless Diesel engines ... 251
system, hammer-spray ... 187
Institution of British Foundrymen, Manchester Conference of ... 491
Instruments and apparatus, test codes on ... 116
musical, some engineering aspects of the design of ... 230
Insulating oils ... 544
Intensifore lubricator ... 129
Intermittent machine work, shock on ... 492
Internal-combustion engine, review of book on ... 727
-combustion engine, revolver-type ... 659
-combustion engines, test code for ... 193
-combustion heat losses ... 313
-combustion turbine, Poplett ... 659
-fan kiln ... 593
International cooperation in research courtesies ... 207
Engineering Congress, Calvin W. Rice envoy to ... 139
engineering congress, 1926 ... 72
Invar ... 139
Involute spur gears, testing ... 591
Iron and steel industries of Pittsburgh district, power and fuel consumption of the ... 32
cast, pearlitic ... 401
chromized ... 491
research work on aluminum, electron and ... 360
IRRESBERGER, CARL ... 185
Italian Embassy, Prince Gelasio Caetani, engineer, heads ... 48

J

JACOBS, W. S. The port of Montreal (D) ... 74
JACOBUS, D. S. Commercial economy of high pressure and high superheat in central station (D) ... 524
Tests of a large type W Stirling boiler (D) ... 64
Japan, earthquake in ... 44
industrial situation in ... 614
JARRETT, H. W. ... 131
JEFFERSON, C. J. Efficiency of Scotch marine boiler ... 220, (C) 442
JENKIN, PROF. C. F. ... 592
Jet propulsion for airplanes ... 305
JOESSEL, CONSTANTIN ... 434
JOHNS, COSMO ... 49
JOHNSON, A. A. ... 305
JOHNSON, J. RALPH ... 544
JOHNSON, R. D. Surge-tank problem (C) ... 436
Joints, "broken" and "unbroken" riveted ... 203
JONES, J. J. Steam distribution in the locomotive (D) ... 591
JORDAN, J. P. Ten years' progress in management (D) ... 362
Joule-Thomson effect in superheated steam ... 63
JUDD, HORACE AND PHELEY, D. B. Effect of pulsations on flow of ... 61
JUNGGREN, OSCAR F. Commercial economy of high pressure and high superheat in central station (D) ... 165
Feed heating for high thermal efficiency (D) ... 223
JUNKERSFELD, PETER. Commercial economy of high pressure and high superheat in central station (D) ... 65
Jurisdictional Awards, National Board of, influence of ... 66

K

Kablitz forced-draft stoker ... 653
KALLAM, F. L. The thermal conductivity of liquids ... 479
KAST ... 712
Kearsarge converted into U. S. Navy crane ship ... 333
KEATING, T. E. Commercial economy of high pressure and high superheat in central station (D) ... 65
Feed heating for high thermal efficiency (D) ... 66
KEENAN, W. M. Feed heating for high thermal efficiency (D) ... 66
KEENS, ALBERTO ... 310
KEITH, G. ... 251
Keith-Whatmough carburetor ... 251
KELLER, J. O. Industrial engineering course at Pennsylvania State College (D) ... 477
KELLEY, F. C. ... 359
KEMP, L. E. ... 495
KENERSON, W. H. Engineering education hampered by New York licensing law ... 664
Kent's Mechanical Engineers' Handbook, reviews of ... 567
Kestner water-tube boiler ... 495
KEYES, F. G. Steam investigation program at research laboratory of physical chemistry, M.I.T. ... 167
Kiln, blower ... 593
internal fan ... 593
Kilns, dry, air circulation in ... 592
lumber dry ... 110
KIMBALL, A. L. AND HEYMANS, PAUL. Stresses in electric-railway motor pinions ... 93
KIMBALL, DEXTER S. The development of machine tools ... 154
National leadership ... 1
portrait of ... 1
Teaching of industrial engineering (D) ... 478
Ten years' progress in management ... 61
King, Otis, slide-rule calculator ... 594
KIRKPATRICK, SIDNEY D. ... 600
KLEINLOGEL, PROFESSOR ... 710
KLEINSCHMIDT, R. V. Joule-Thomson effect in superheated steam ... 165
KLOPMAN, L. Recent developments of the motor coach (D) ... 466
KNIGHT, W. A. Design of milling cutters (D) ... 267
KNOBLAUCH, DR. OSCAR ... 131, 314
Knorr-Kunze air brake ... 548
KNOWLES, C. R. ... 439
Knudsen Diesel engine ... 546
KONNO, SEIBEI ... 185
KREISINGER, HENRY ... 592
KRUGER ... 663
Kunze Knorr-air brake ... 439
KUTTER, H. L. Machine-tool industry in paper manufacturing (D) ... 428
Kutter's formula ... 437

L

LaBelle's uniflow steam engines ... 546
Laboratory and drawing-room course in industrial engineering in Cornell University, a practical ... 475
Labor-saving equipment, formulas for computing economies of ... 564
-saving machinery ... 269
versus mechanical power ... 642
Lacierva autogiro ... 358
Lag, thermometric ... 305
Lagonda car ... 661
Langley Field Laboratory, results achieved at ... 513
LARNER, C. W. Surge-tank problem (C) ... 204
Lathe breakdown tests ... 360
LAWRENCE, H. F. The design and operation of underfeed stokers ... 19
Author's closure to discussion on ... 24
LAWRENCE, JOHN H. ... 190
Boiler-furnace design (D) ... 303
High-temperature and high-pressure steam lines (D) ... 293
Lead-coated pipe ... 121
plating ... 121
Leadership, national ... 1
Leaks in underground pipe lines, locating (C) ... 443
Leather, artificial-, plant, drying equipment in an ... 600
LeChatelier ... 712
LEDOUX, ALBERT REID, death of ... 721
LEE, MYRON A. Practical laboratory and drawing-room course in industrial engineering at Cornell University ... 475
LEERBERG, N. ... 707
LESSELLS, J. M. Notes on fatigue of metals ... 695
LESTER, H. H. ... 257
Leyden cryogenic laboratory ... 305
LIBBY, SAM H. Ash-handling methods (D) ... 92
Library notes and book reviews ... 80, 147, 212, 272, 328, 397, 454, 567, 624, 670, 727
Licensing law, N. Y., hampers engineering education ... 664
Lifeboat Institution, Royal National ... 309
motor, British ... 309
Lignite char: its production and possibilities ... 282
utilization of ... 361
wet, dust firing of ... 361
LINCOLN, PAUL M., new dean of electrical engineering school of Cornell University ... 79
LINDE ... 305
LINDE, DR. RICHARD ... 306
Liquefaction of air ... 305
methods of ... 305
of gases, methods of ... 305
Liquids, thermal conductivity of ... 479
Literature, technical ... 320
LIVENS ... 251
Ljungström, Brush-, turbine ... 431
Company, Swedish ... 253
marine turbines ... 124
LLOYD, M. G. Development of industrial safety codes ... 356
Uniform safety legislation ... 444
Lock Joint Pipe Company ... 58
LOCKWOOD, E. H. ... 187
Locomotive boiler code, revisions on ... 273
boiler proportions, graphical analysis of ... 190
construction, next step in ... 255
Inspection, Bureau of ... 255
Mikado, 3-cylinder, German ... 439
piston packing, Rowan ... 56
practice, British ... 128
starter, Street ... 56
steam, first run on rails in America (C) ... 560
steam, out of date? ... 256
Locomotives, American, in France ... 710
electric, 4000-hp. ... 366
geared, Willamette ... 311
Mikado, vs. electrification ... 311
Pilliod-sleeve-valve ... 497
test code for ... 602
Loening flying control ... 184
Loftus open-hearth furnace ... 125
LOGUE, CHARLES H. Testing involute spur gears (D) ... 81
London electric railway cars ... 311
LONG, JOHN J. Teaching of industrial engineering (D) ... 478
Long-haul heavy-traffic service, airship for ... 235
LONGWELL, HENRY E. The entropy of saturated steam: its relation to specific volume (C) ... 136
Los Angeles headquarters for second A.S.M.E. regional meeting ... 446
regional meeting ... 393
LOUGHEAD, MALCOLM ... 709
LOW, FRED R., editor and teacher ... 614
Lowe burner ... 545
LOWNDES, R. H. Use of pulverized coal in open-hearth furnaces ... 651
Lubricating oils at high pressures, viscosity of ... 315
Lubricator, Intensifore ... 129
Lumber-cutting waste and production, control of ... 42
dry kilns ... 110
standardization program ... 453
LUNDGREN, EDVIN ... 253
LUNDGREN, EDWIN. Marine application of stokers (D) ... 22
LUNIER, M. ... 710
Lux Company ... 709

M

McCOURT, C. D. ... 592
McDOWELL, J. C. AND BASCOM, F. P. Bleachery engineering and operation (D) ... 425

McKelvy, E. C. ... 313, 367, 547
McKitterick, J. J. ... 592
McLaureine, W. W. Characteristics of the successful manager ... 619
McMillan, L. B. High-temperature and high-pressure steam lines (D) ... 293
Macauley, Alvan ... 493
Machine meeting, Philadelphia holds successful ... 267
screws, bolts, nuts and commercially tapped holes, standard screw threads for ... 498
-shop division of A.S.M.E., plan and scope committee of, presents report ... 428
-tool industry, economic features of the ... 151
tools and machine-shop practice discussed at Philadelphia meeting, February 27 ... 267
tools and manufacturing processes, hydraulic transmission, variable-speed drive for ... 238
tools, design and construction of large ... 215
tools, development of ... 154
tools, push or pull ... 188
work, intermittent, shock on ... 492
Machined fits, standard tolerances and allowances for ... 699
Machinery, industrial, Asiatic markets for ... 265
testing by sound ... 52
woodworking, new factors influencing the design of ... 180
Machines, balancing, recent developments in ... 353
experimental, costs in building ... 363
Machining, inaccurate, strength of bolt threads as affected by ... 583
MacIntire, H. J. ... 312
Madison, J. O. Stresses in electric-railway motor pinions (D) ... 137
Madsen, Sern. New factors influencing the design of woodworking machinery ... 180
Magnesium castings ... 48
Making America independent in the air ... 513
goods and making money ... 4
Mallard ... 712
Man, coal and water power of western slope of southern Appalachian mountains ... 637
Management Association, American ... 327
business and financial side of ... 620
engineering in the paper industry ... 295
industrial, phases of ... 617
measurement of ... 632
of woodworking industries, the mechanical engineer in the ... 692
Manager, qualifications of a ... 619
Manchester Conference of the Institution of British Foundrymen ... 491
Manganese, adding to aluminum ... 185
Manly, C. M. Hydraulic transmissions (D) ... 241
Manning, W. O. ... 358
Manufacturing processes and machine tools, hydraulic - transmission, variable - speed drive for ... 238
Mapping, topographical ... 75
Marine boiler, Scotch, efficiency of ... 220, (C) 442
borers ... 122
field, standardization in the ... 453
Piling Committee, San Francisco Bay ... 122
Markets for industrial machinery, Asiatic ... 265
Marsh, Thos. A. ... 250, 657
Ash-handling methods (D) ... 94
Determination of chimney sizes (D) ... 536
Development and use of the modern chain grate ... 14
Author's closure to discussion on ... 14
Martin, H. M. ... 440
Marx, G. V. D. and Young, Garth L. Performance tests of steel belts with compressed spruce pulleys ... 246
Massachusetts Institute of Technology, steam investigation program at research laboratory of ... 167
students given unusual opportunity by Boston ... 79
Materials handling, a search for facts in ... 722
handling problems in pier design ... 525
Mathematical and graphical symbols and abbreviations, standardization of ... 394
Mathews, Prof. A. P. ... 493
Mauclere system of pneumatic handling of inflammable liquids ... 130
May, R. ... 542
Maynard, E. ... 308
Maynz, T. Ash-handling methods (D) ... 92
Uniform coal in stoker operation (D) ... 22
Mayoh, Frank H. ... 707
Measurement ... 664
of fuel oil on motorships ... 492
of management ... 632
Measurements in ordnance work ... 720
physical, new instruments for ... 673
Measuring flow of water in closed conduits, Gibson method and apparatus for ... 679
Mechanical engineer in management of woodworking industries ... 692
engineers, recent progress in standardization of particular interest to ... 394
power-transmission apparatus, safety code for ... 384
Meier, Charles. Helical involute gearing for metal planers (D) ... 61
Meisenhelter, L. R. Design of large machine tools (D) ... 267
Menges, C. P. Review of sampling and analysis of coal, coke and by-products ... 454
Metal, bearing, thermit ... 435
monel, refinery and rolling mill for ... 285
power required for cutting ... 35
stretching a ... 497
Metals, corrosion tests of, in mine waters ... 307
crystal structure and properties of, at low temperatures ... 305
diffusion of ... 359
fatigue of, progress of investigation of ... 323
fiber in ... 41
finding elastic limit of, acoustic method of ... 497
notes on the fatigue of ... 695
radiography of, at Watertown Arsenal ... 257
Metallurgical and allied processes, oxygen in ... 601
Meter, Bassler ... 492
carbon monoxide ... 711
venturi, oil ... 297
Meters, fluid, in refrigerating tests ... 663
fluid, progress report of A.S.M.E. research committee on ... 135
Methane, specific heats of ... 712
Metropolitan district, hydroelectric power for ... 322
Microtelescope, Davon ... 131
Mikado locomotives vs. electrification ... 311
Miller, Fred. J. Engineering and economics (D) ... 13
Relieving industry of burden (D) ... 61
Ten years' progress in management (D) ... 61
Miller, H. W. ... 709
Millikan, Dr. Robert A., awarded the Edison Medal for 1922 ... 140
Milling cutters, chip formation by ... 586
cutters, effect of variations in design of on power requirements and capacity ... 155
machines, double tables on ... 707
plate-, machine, vertical ... 439
Mine waters, corrosion tests of metals in ... 307
Mines, Bureau of ... 307
Mining and Metallurgical Engineers, American Institute of, meeting ... 271
Engineers, British, elect Robert Gilman Brown president for 1923–24 ... 213
Mitchell, Wesley C. Making goods and making money ... 4
Mollier, Prof. A. ... 703
Monel metal at high temperatures ... 656
metal, refinery and rolling mill for ... 285
Money and goods, making ... 4
Montreal Spring Meeting, 1923, advance notice of ... 265
Spring Meeting of A.S.M.E., account of ... 424
the port of ... 521
Moody, Lewis F. Modern hydraulic turbines of large capacity (D) ... 474
Surge-tank problem (C) ... 204
Moore, P. N., vice-president of American Engineering Council, portrait of ... 142
Moore, R. R. ... 706
Morison ... 599
Morrison, W. S. Boiler control (D) ... 487
Morse, L. S. ... 663
Motor cars, acetylene-driven ... 708
cars, Andrade differential for ... 438
cars, hydraulic four-wheel brakes for ... 709
cars, saturation of country with ... 493
cars, variable gear for ... 252
coach, recent developments of the ... 463
lifeboat, British ... 309
omnibus, six-wheel ... 188
pinions, electric-railway, stresses in ... 93
railway-, gear cases ... 711
Ripert, with steam chamber in head ... 186
truck, gasoline, Zeitler, for railway-car bodies ... 129
W-type ... 123
Motorships, measurements of fuel oil ... 492
Motz, W. H. ... 57, 366, 497
Mouchot ... 364
Moultrop, I. E. ... 598
Ash-handling methods (D) ... 92
Commercial economy of high pressure and high superheat in central station (D) ... 64
Moyer, James A. Extension and correspondence schools ... 169
Muffly, Glenn ... 362
Muller, E. A. Declaration of values in machine-tool industry ... 620
Municipal problems, Detroit engineers discuss ... 667
Münzinger, Dr. Ing. Friedrich ... 653
Muraour, H. ... 712
Murray, F. F. Engineering aspects of design of musical instruments (D) ... 233
Murray, K. S. ... 305
Murray, W. S. Hydroelectric power for metropolitan district ... 322
Museum, engineering, requires interest and aid of entire profession ... 138
Musical instruments, engineering aspects of design of ... 230
Myers, David Moffat. Marine application of stokers (D) ... 22

N

Nagel, C. E., Crozier, H. W. and Stigen, J. Diesel-engine progress on the Pacific coast ... 421
Nagler, Forrest. Cross-flow impulse turbine ... 275
National Advisory Committee for Aeronautics, photograph of ... 513
Board of Jurisdictional Awards, influence of ... 75
Electric Light Association, Prime Movers Committee ... 495
leadership ... 1
Research Council, engineering division of elects officers ... 266
Research Council, research committee of engineering division ... 559
Naval Architects and Marine Engineers, Society of, meeting ... 78
Naylor, H. R. Steel-car construction at the Angus shops of C. P. R., Montreal ... 349
Steel-car construction (D) ... 425
Neil, J. ... 127
Nelis, Jos. J. Marine application of stokers (D) ... 23
Nesbit, A. F. ... 131
Net generator output, definition of ... 563
New York University, aeronautical engineering at ... 724
Ni-chro-zink ... 250
Nibbling machines ... 708
Nicholson, G. F. Material-handling problems in pier design (D) ... 530
Nicholson, W. H. Diesel-engine clutch used in German submarine "U-1 7" ... 113
Nickel-chrome steel, ingot corner segregation in ... 125
corrosion ... 591
steels ... 591
Nicolson, Prof. John T. ... 190
Nielsen, K. E. ... 440
Nisley, Harold Albert ... 711
Nitrogen, oxygen and, industries in Germany ... 306
Noël-Storr, C. E. ... 52
Non-pinker, Hobson ... 188
North Metropolitan Electric Power Supply Company ... 361
Norton ... 305
Noyes, E. W. and Sturtevant, H. V. Size selection of dry-vacuum pumps ... 103
Nusselt coefficient of heat transmission ... 589
Nuts and bolts, wrench-head, proposed standard sizes of ... 702
bolts, machine screws and commercially tapped holes, standard screw threads for ... 498

O

Oatley, H. B. Commercial economy of high pressure and high superheat in central station (D) ... 64
Steam distribution in the locomotive (D) ... 63
Oberg ... 363
O'Connor, G. F. ... 313, 547
Oil burning ... 190

burning, air in ... 122
engine, high-pressure, with airless fuel injection ... 593
engines, proposed classification of ... 234
for cooling ... 434
-fuel burning system, Clyde ... 491
palm, West African ... 358
venturi meter ... 297
Oils, insulating ... 544
lubricating, viscosity at high pressures ... 315
Omnibus, motor, six-wheel ... 188
O'Neil, Haylett ... 126
One hundred years of transportation ... 391
Onnes, Prof. J. Kamerlingh ... 305
Ontario, hydroelectric developments in ... 410
Open-hearth furnace, Loftus ... 125
furnaces, use of pulverized coal in ... 651
Ordnance industrial mobilization ... 627
Organization, factory ... 309
Orifice coefficients—data and results of tests ... 342
Orifices, drilled, small ... 123
Orrok, Geo. A. ... 495
Elasticity of pipe bends (D) ... 164
High-temperature and high-pressure steam lines (D) ... 293
Hydroelectric power for the metropolitan district ... 322
Osborne, N. S. Steam research at U. S. Bureau of Standards ... 168
Oscillating ammonia compressor ... 312
Oscillations, mechanical and electrochemical power transmission by, Schieferstein's system ... 254
Ostertag, P. ... 256
Overfeed stokers of the inclined type ... 17
Owles, A. B. ... 544
Oxford, Carl J. Design of milling cutters (D) ... 267
Oxygen and nitrogen industries in Germany ... 306
-enriching of the blast ... 192
in metallurgical and applied processes ... 601
liquid, for use on aircraft ... 305

P

Pacific coast, Diesel-engine progress on the ... 421
coast, engineering achievements shape program for regional meeting of the ... 446
Pack, Charles ... 250
Packard, H. N. Effect of pulsations on flow of gases (D) ... 228
Packard eight ... 362
engine, eight-in-line ... 493
Packing, locomotive piston, Rowan ... 56
Paine, Roy E. ... 591
Palm oil, West African ... 359
Paper industry, management engineering in ... 295
Paragon reversible propeller ... 121
Parks, Burritt A. Lumber dry kilns (D) ... 234
Parsons, Fred A. Design of milling cutters (D) ... 267
Power required for cutting metal ... 35
Partington, J. R. ... 257
Patent office salaries and the public interest ... 139
Patterson, A. W. Boiler-furnace design ... 303
Pearlitic cast iron ... 491
gray cast iron ... 656
Pease, Francis G. The 100-inch Hooker reflecting telescope of the Mt. Wilson Observatory ... 447
Peck, Eugene C. Unilateral system of tolerances ... 697
Pedestals for turbo-generators ... 189
Pendulum aerodynamic tests ... 490
Percy, J. C. Instruction for stoker operators (D) ... 24
Perry, T. D. Engineering aspects of design of musical instruments (D) ... 233
Lumber dry kilns ... 110
Person, H. S. Relieving industry of burden (D) ... 61
Ten years' progress in management (D) ... 61
Personnel Association, National, meeting of ... 79
methods—recognition and classification of human abilities ... 134
Peterson, Hans ... 601
Petroleum Institute, American, meeting of ... 210
Phelev, D. B. and Judd, Horace. Effect of pulsations on flow of ... 223
Philadelphia holds successful machine meeting ... 267
Phillips, L. A. Design of cooling towers (D) ... 102
Phosphorus in brass ... 48
Physical dimensions ... 493
measurements, new instruments for ... 673
Physics, a Dictionary of Applied, a review of ... 147
Pier ... 712
Pier design, material-handling problems in ... 525
Pigott, R. J. S. Effect of pulsations of flow of gases (D) ... 229
Orifice coefficients—data and results of tests (D) ... 346
Review of Kent's Mechanical Engineers' Handbook ... 567
Piling, Marine, San Francisco Bay Committee on ... 122
Pilliod-sleeve-valve locomotives ... 497
Pincus, A. ... 127
Pinions, electric-railway motor, stresses in ... 93
Pinking ... 188
Pipe bends, elasticity of ... 159
concrete, centrifugal ... 58
flow of water through ... 437
lead-coated ... 121
lines, underground, locating leaks in (C) ... 443
Pipes, steam in, velocity of ... 190, (C) 317
stresses in ... 708
valves and, loss of head in ... 250
Piping ... 594
delivery ... 308
station ... 495
systems, code for identification of ... 76
Piston packing, locomotive, Rowan ... 56
Pittsburgh district, power and fuel consumption of iron and steel industries of ... 401
power survey ... 444
Plain speaking ... 264
Plane, light ... 358
Planer, herringbone-gear ... 707
Planes, light, cycle engines for ... 434
small-motored ... 323
Plant economy, effect of feedwater heating on ... 417
Plate-milling machine, vertical ... 439
Plates and bars, A.E.S.C. approves specifications for wrought-iron ... 622
Plow steel ... 360
Pluto forced-draft stoker ... 653
Pogue, Joseph E. Relieving industry of burden (D) ... 61
Poirson ... 545
Poisson's ratio ... 661
Poitrineau, A. ... 55
Polakov, Walter N. Mode of use of stoker (D) ... 22
Poles, concrete, centrifugally made ... 436
Poliakoff, R. Design of milling cutters (D) ... 267
Pope, Joseph ... 598
Port of Montreal ... 521
Porter, Prof. A. W. ... 305
Portevin, A. ... 48
Poultney, E. C. ... 128
Power and fuel consumption of iron and steel industries of Pittsburgh district ... 401
boilers, care of, proposed code for ... 368
conference, world, London, June 30-July 12, 1924 ... 720
conference, world, note on ... 445
conference, world, tentative program is announced for first ... 615
development, progress in the art of ... 133
Exposition and A.S.M.E. Annual Meeting, editorial on ... 71
from tides ... 281
hydroelectric, for the metropolitan district ... 322
interstate, Secretary Hoover favors sectional control of ... 712
-plant efficiency, improving ... 24
required for cutting metal ... 35
requirements and capacity, effect of variations in design of milling cutters on ... 155
scheme, hydroelectric, American continent ... 547
-station design ... 52
survey of Pittsburgh ... 444
Test Code issued, first 1923 ... 724
-transmission apparatus, mechanical, safety code for ... 384
transmission by oscillations, Schieferstein system ... 254
water, coal and man, of western slope of southern Appalachian mountains ... 637
wave transmission of ... 55
Preferred-number series, development and importance of ... 587
Preheating air ... 655
Press, power-, parts, nomenclature for ... 492
Presses, power, foot and hand, note on safety code for ... 209
Pressure gage, minute flexure of diaphragm of ... 661
vessels, welded ... 540
Prime Movers Committee, National Electric Light Association ... 495
Prindle, E. J. Patent office salaries and the public interest ... 139
Propeller, reversible, paragon ... 121
semi-flexible, solid-metal, Reed ... 358
wind- ... 49
Prout, Charles E. Ash-handling methods (D) ... 92
Public affairs, the engineer in ... 393
life, the engineer in ... 208
Pull or push cutting strokes ... 188
Pulleys, compressed-spruce, performance tests of steel belts with ... 246
Pulsations, effect on flow of gases ... 223
Pulsometer Engineering Company ... 310
Pulverized coal, Bruay Mines, France ... 183
-coal burner of Allgemeine Elektricitaets Gesellschaft ... 654
coal, explosive tendencies of ... 592
coal in open-hearth furnaces, use of ... 651
fuel ... 52
-fuel firing ... 654
Pump, air, reciprocating ... 306
centrifugal, theory of ... 309
extraction, condenser, with glands under pressure ... 255
high-speed, with ring valves ... 310
rotary ... 55
Pumps, centrifugal, in steel plants ... 662
dry-vacuum, size selection of ... 103
gyroscopic ... 310
Puplett, T. ... 659
Puplett internal-combustion turbine ... 659
Push or pull cutting strokes ... 188

Q

Quarter, passing of the ... 188
Quebec, hydroelectric possibilities of ... 407

R

Radiography of metals at Watertown Arsenal ... 257
Radiophragm heating ... 592
Railroad car, Diesel-electric ... 256
Railroads, American ... 207
Rails, steel, transverse fissures in ... 599
Railway-car bodies, Zeitler gasoline motor truck for ... 129
cars, Stafford roller bearing for ... 362
electrification, facts favoring ... 326
Engineering Association, American ... 327
Raisch, E. ... 538
Rand, Charles F., made honorary member of Association of Members of American National Engineering Societies in Cuba ... 140
Rateau ... 599
Rateau scheme for high flying ... 121
Redman, Kenneth. Lumber dry kilns (D) ... 233
Redpath, Wm. ... 191
Reed, S. Albert ... 358
Reed solid-metal semi-flexible propeller ... 358
Reeling and straightening machines ... 711
Rees, S. H. ... 656
Refinery and rolling mill for monel metal ... 285
Reforestation ... 269
legislation imperative, constructive ... 616
Refractories, boiler-furnace ... 210
Refrigerating Engineers, American Society of, meeting ... 78
tests, fluid meters in ... 663
Refrigeration cycle, compression ... 366, 497
Regional meeting at Chattanooga, southern sections hold ... 723
meeting, engineering achievements of Pacific coast shape program for ... 446
Remote control and sectionalization of high-pressure steam lines ... 483
Research, apparatus and supplies for ... 258
coal, terminology in ... 308
committee of A.S.M.E. on fluid meters, progress report on ... 135
committee of engineering division of National Research Council ... 559
committee on lubrication, progress report of on viscosity of lubricating oils at high pressures ... 315
engineering ... 68, 134, 201, 258, 316, 386, 441, 504, 559

in engineering education, $108,000 for 721
information service, note on 134
information service of the National Research Council 68
international cooperation in 207
laboratory of physical chemistry, M.I.T., steam investigation program at 167
steam, at the U. S. Bureau of Standards 168
steam, progress in 165
Revolver-type internal-combustion engine 659
REYNOLDS, H. B., outlines definition of net generator output 563
RICE, CALVIN W. Coöperation of A.S.M.E. in industrial mobilization 664
reports on South American trip 72
RICHARDS, C. R. Industrial education as represented in schools 175
RICHARDSON, E. A. Mathematical determination of modulus of elasticity (C) 259
RICKETTS, E. B. Boiler-furnace design 299
RILEY, R. SANFORD. The underfeed stoker (D) 23
RINDFUSZ, R. E. Standardization of paper and printing machinery (D) 66
Rings, steel and non-ferrous, rolling 601
Ripert motor with steam chamber in head 186
RISTEEN, A. D. Safety engineering in compression of gases 242
RITTMAN, W. F. AND ELY, S. B. Power and fuel consumption of iron and steel industries of Pittsburgh district 401
Riveted joints 363
ROBERTS, W. B. 128
ROBERTSON, W. H. A. 711
ROBINSON, C. S. Design of cooling towers 99
ROBINSON, ERNEST L. Margins of possible improvement in central-station steam plant 685
Robinson piston and pressure-relief valve 129
ROBY, C. F. Chip formation by milling cutters 586
ROE, J. W. Measurement of management 632
ROHRER, E. E. 363
ROICK, HERR 251
Roller chains and sprockets 500
Rolling mill and refinery for monel metal 285
mill, tube 130
steel and non-ferrous rings 601
RONEY, W. R. Human element in stoker operation (D) 22
Rope, steel wire, on sheaves 360
ROSENCRANTS, F. H. Feed heating for high thermal efficiency (D) 66
ROSENHAIN, DR. WALTER, to lecture in Eastern states 140
ROSER 363
Rotary engine, Statax three-cylinder 251
Rowan locomotive piston packing 56
Royal National Lifeboat Institution 309
RUBLE, ROLAND O. 250
RUSHMORE, DAVID B. Ten years' progress in management (D) 61
RUSTIGE, N. H. 709
RUTHS 599
RYDING, H. C. Carrying on constructive and productive operations 617

S

SACKETT, R. L. Schools for apprentices and shop training 173
Ten years' progress in management (D) 61
Safe engineering versus safety engineering 264
Safety code for mechanical power-transmission apparatus 384
code for power, foot, and hand presses, note on 209
code on walkway surfaces, national conference votes for 326
codes, industrial, development of 356
Congress, twelfth annual to meet in Buffalo 622
engineering in compression of gases 242
engineering, safe engineering versus 264
legislation, uniform 444
Saint-Venant torsion of bars 45
Sampling and analysis of coal, coke and by-products, review of 454
SANFORD, S. S. AND CROCKER, SABIN. Elasticity of pipe bends 159
SANSOM, G. B. 131
Saturated steam, entropy of: its relation to specific volume (C) 136
SAVAGE, H. D. 596
Lignite in powdered form (D) 427
Saw, slitting, relieved 492
"Scale effect" 490
SCHACK, ALFRED 589
SCHEIDENHELM, F. W. Hydroelectric power for metropolitan district 322
SCHIEFERSTEIN, HENRICH 310
Schieferstein power transmission by oscillations 254
SCHIPPER, J. EDWARD 126, 493
SCHIRMER, S. 365
SCHMIDT, ERNEST 248
Schneider Co. airplane 121
Scholarships, Westinghouse war memorial 669
SCHONGER, H. 365
Schools, extension and correspondence for apprentices and shop training 169
industrial education as represented in 173
SCHUELE 314
Schutte-Koerting Co. 54
SCHWARTZ, H. A. 705
Scotch marine boiler, efficiency of ..... 220, (C) 442
SCOTT, CHAS. F. The engineer of tomorrow 138
Scratch hardness test 433
test 432
Screw-thread series, an American 506
threads, standard for bolts, machine screws, nuts and commercially tapped holes 498
Sculpture by camera 58
Sea water, disintegration of cement in 544
SEAGER, H. R. Engineering and economics (D) 10
Second revision of A.S.M.E. boiler code, 1923 379
Sectional Committees, recent progress of some 268
Sectionalization and remote control of high-pressure steam lines 483
Segregation, ingot-corner, in nickel-chrome steel 125
SEIGLE, J. 662
SELEY, C. A. 190
SÉPULCHRE, VICTOR 657
SERVAIS, E. 657
SEYMOUR, HARTLAND 592
Shafting, cold-finished, standards for 668
Shafts, spline, processing 51
Shapers 188
SHAW, J. A. Recent developments of the motor coach (D) 434
Shawinigan Falls water-wheel generator 467
Sheaves, steel wire rope on, tests of 436
SHEPARD, C. D. Efficiency of Scotch marine boiler (C) 360
SHEPARD, GEO. H. Industrial-engineering course in Purdue University (D) 442
SHEPARD, J. A. Industrial-engineering courses (D) 478
Material-handling problems in pier design (D) 478
SHILLING, W. G. 530
Shock on intermittent machine work 257
Shop training and apprentices, schools for 492
SHORT BROS. 173
SHUMAN 490
SIBLEY, ROBERT. The electrical and industrial west 364
SIMPKIN, N. 544
SINNATT, F. S. 544
SJOVALL, H. AND HEINDLHOFER, K. Endurance-test data and their interpretation 579
SKILLMAN, EDWARD 360
Skoda works, conversion of, to peaceful purposes 631
Slag on boiler tubes 53
Slide-rule calculator, Otis King 594
SLOVSKY, MAX. Shortcomings of certain engineers in management work 620
Small electric plants and large systems 462
SMALLWOOD, JULIAN C. Blended fuels for automotive engines 577
Determination of chimney sizes (D) 536
SMITH, AUGUSTUS. Material-handling problems in pier design (D) 530
The port of Montreal (D) 524
SMITH, A. R. 435
SMITH, DEMPSTER 706
SMITH, E. S., JR. Oil venturi meter 297
SMITH, JULIAN C. Hydroelectric possibilities of Quebec 407
SMITH, WALTER 121
SMOOT, C. H. 663
Commercial economy of high pressure and high superheat in central station (D) 64
Societies, other, news of ..77, 210, 271, 327, 396, 450
SODERBERG, C. R. Recent developments in balancing machines ..... 353, (C) 428
SOHM, MICHEL 183
Solar power plant, Berland-Caufourier 364
receiver, Berland 364
Solders for aluminum 360
SORENSEN, R. W. Description of testing set installed at California Institute of Technology 447
Sound-testing devices 52
testing machinery by 52
South American trip, Calvin W. Rice reports on 72
Southern Appalachian power conference holds annual meeting 508
Specific heat of air, variation with temperature 257
heat of gases and vapors 663
heat of gases, variation with temperature 712
heat of methane 712
heat of working fluid 313
volume: its relation to the entropy of saturated steam (C) 136
Specifications board, Federal, and industry, cooperation between promoted by A.E.S.C. 146
uniform, Secretary Hoover advocates in making Government specifications 310
Speed cones, open-belt, methods of calculating diameters of (C) 387
Spence humps 128
SPENCER, C. G. Boiler-furnace design (D) 303
Need of stoker handling all grades of fuel (D) 23
SPIDY, E. T. Machine-tool industry in paper manufacturing (D) 428
SPITZGLASS, A. F. Orifice coefficients—data and results of tests (D) 347
SPITZGLASS, J. M. Effect of pulsations of flow of gases (D) 228
Orifice coefficients—data and results of tests 342
Spontaneous combustion of coal, factors in the 691
SPRAGUE, O. M. The relation of bank credits to the business cycle 620
Spring and Annual Meetings. *See* A.S.M.E.
Sprockets, roller chains and 500
Spruce, compressed-, pulleys, performance tests of steel belts with 246
Spur gears, involute, testing 32
Stabilizer, Gray 434
Stafford roller bearing for railway cars 362
Stainless steels 656
Standard screw threads for bolts, machine screws, nuts and commercially tapped holes 498
sizes proposed for wrench-head bolts and nuts 702
tolerances and allowances for machined fits 699
Standardization, engineering and industrial 76, 146, 209, 268, 325, 394, 453, 510, 566, 622, 668, 725
faults and virtues of 668
in the marine field 453
industrial, new plan for financing approved 268
lumber program 453
of ball bearings, international 726
of mathematical and graphical symbols and abbreviations 394
of methods of testing wood now under way 209
of particular interest to mechanical engineers, recent progress in 394
of plain limit gages for general engineering work, first report of sectional committee on 699
procedures, international conference promotes 614
progress of particular interest to mechanical engineers 394
Standards, Bureau of 313
Bureau of, conducts investigation on welded pressure vessels 210
for herringbone gears for general commercial use 145
for round unslotted bolt heads 725
for steel flanges for high-pressures definitely planned 725
of quality, voluntary adoption of 325
U. S. Bureau of, Dr. Fay C. Brown appointed acting director 213
U. S. Bureau of, steam research at the 168
U. S. Bureau of, to report later on welded vessels 265
Stanley Steel Welded Wheel Corporation 497
Starter, locomotive, Street 56
Statax three-cylinder rotary engine 251
State rights and water power 320
Static indentation tests 433
Stationary steam-generating units, test code for 548
Steam accumulators 599
air mixture 703
at Wilson line 440
at 1200-lb. pressure 598
engine, new theory of 440

engine, uniflow, LaBelle's 546
-generating units, stationary, test code for 548
generators, electric 54
in a cotton-goods plant 546
in pipes, velocity of (C) 317
investigation program at research laboratory of physical chemistry, M.I.T. 167
lines, high-pressure, sectionalization and remote control of 483
lines, high-temperature and high-pressure 289
locomotive, the first run on rails in America (C) 560
plant, central-station, margins of possible improvement in 685
pressures and temperatures, higher 495
research at U. S. Bureau of Standards 168
research, progress in 165
saturated, entropy of: its relation to specific volume (C) 136
station, extra high-pressure 598
superheated-, flow, velocity of 594
superheated, Joule-Thomson effect in 165
tables 538
turbine, Brush-Ljungström 431
turbines 710
turbines, blade fitting in 710
turbines, last-stage expansion in 710
turbines, leaving losses in 661
velocity 190
(water vapor), properties of 314
Steamship, converting, to Diesel power 660
Steel and iron industries of Pittsburgh district, power and fuel consumption of 401
belts with compressed spruce pulleys, performance tests of 246
-car construction at the Angus shops of the C. P. R., Montreal 349
cast-, freight car underframe 710
conveyor belt at a stone pulverizing plant 660
plants, centrifugal pumps in 662
Steels, cold-drawn, low-temperature annealing of 656
nickel 591
stainless 656
system for numbering to be developed under procedure of A.E.S.C. 146
tool, high-speed, modern 360
Steinmetz, Charles Proteus, dies 722
portrait of 722
Steubing, A. F. 255
Stevens, John A. Commercial economy of high pressure and high superheat in central station (D) 64
Elasticity of pipe bends (D) 164
Stevens, Roger B. 127
Stigen, J., Nagel, C. E., and Crozier, H. W. Diesel-engine progress on the Pacific coast 421
Stirling boiler, type W, tests of a large 25
Stodola, Professor 440
Stoker, forced-draft, Kablitz 653
forced-draft, Pluto 653
practice, developments in 14
Stokers 653
discussion on at fuels session 21
overfeed, inclined type 17
underfeed, design and operation of 19
Stone-pulverizing plant, steel conveyor belt at 660
Stopes, Marie C. 308
Store winter coal now 391
Storrs plan of domestic coal storage 324
Straightening machines, reeling and 711
Strauss, Jerome 360
Strauven, Prof. M. 314
Street locomotive starter 56
Stress analysis, important to A.S.M.E. members interested in 399
Stresses, bending, in curved tubes of rectangular cross-section 582
in electric-railway motor pinions 93
Stretching a metal 497
Stroboscopic instrument for studying high-speed motion 663
Stromboli aero engine 594
Stromeyer, C. E. 128, 189
Student enrollment in engineering courses 449
Sturtevant, H. V. and Noyes, E. W. Size selection of dry-vacuum pumps 103
Submarine "U-117," German, Diesel engine clutch used in 113
Subway cars, modern, and their operation 647
Sugar-manufacturing plant, electric drive in 127
Supercharger 708
Supercharging, Rateau scheme for high flying 121
Supercooled water 56
Superheated steam, Joule-Thomson effect in 165
Superheater design 190
Superheaters and economizers 655
Superheating of the blast 192
Supermicroscope 131
Supersaturation limit 440
Surface combustion 592
Surge-tank problem (C) 202
Swan, John J. Presents progress report on standards for graphics 61
Switzer, J. A. and Woolrich, W. R. Water, coal and man power of western slope of southern Appalachian mountains 637
Symbols and abbreviations, mathematical and graphical, standardization of 394
Syracuse Industrial Gas Company 48

T

Tank, conical-bottom 547
large, exhaustion of 306
Tanks, air 541
ammonia 541
Tar, gashouse 361
Taylor 188
Taylor, C. S. 367
Taylor, H. Birchard. Modern hydraulic turbines of large capacity (D) 473
Taylor, H. E. 309
Taylor Society, meeting of 77
Technical literature 320
Tellier 364
Temperature control, automatic, Geissinger, for oil-fired furnaces 706
Temperatures at which physical changes occur 126
Tempering coal 250, 657
Tenney, E. H. Ash-handling methods (D) 92
Tensile tests, dynamic and static 711
Test code for internal-combustion engines 193
code for locomotives 602
code for stationary steam-generating units 548
code on instruments and apparatus 116
-endurance, data and their interpretation 579
Thermal conductivity of liquids 479
efficiency, high, feed heating for 105
Thermit bearing metal 435
Thermodynamic process, imaginary 440
Thermometers, room 131
Thermometric lag 305
Thompson, C. R. Material-handling problems in pier design 525
Thompson, L. R. Lignite as a fuel (D) 427
Thompson, Paul W. Tests of a large type W Stirling boiler 25
Thomson, Sir J. J. visits America 392
Thomson-Joule effect 314
Threads, bolt, strength of as affected by inaccurate machining 583
standard screw, for bolts, machine screws, nuts and commercially tapped holes 498
Thrust blocks 710
Tides, power from 281
Tile, hollow-, walls, compressive tests of 590
Timoshenko, S. Bending stresses in curved tubes of rectangular cross section 582
Mathematical determination of the modulus of elasticity (C) 259
Torsion of crankshafts 96
Tire, "balloon" 363
Tolerances and allowances for machined fits, standard 699
unilateral system of 697
Toltz, Max. Commercial economy of high pressure and high superheat in central station (D) 65
Lignite char (D) 426
correction to above discussion 563
Steel-car construction (D) 425
Tool, bench 492
steels, high-speed, modern 360
temperatures and cutting resistance of metals 705
Tools, machine, and manufacturing processes, hydraulic - transmission, variable - speed drive for 238
Topographical mapping 75
Tornebohm, Hilding. Development and importance of preferred-number series 587
Torsion of crankshafts 96
Torsional strength of bars 45
Town, F. E., presents progress report on management terminology 61
Townley, Calvert, vice-president American Engineering Council, portrait of 142
Trade-Association activities, review of 623
Traffic signals, colors for, sectional committee on organized uader A.E.S.C. procedure 77
Train loads 129
Training for the industries, vocational 169
shop, schools for apprentices and 173
Transportation and progress 724
one hundred years of 391
Treat, F. H. 49
Treat gas producer 49
Tschappat, Col. W. H. New instruments for physical measurements 673
Tube rolling mill 130
Tubes, boiler, failures of 126
boiler, slag on 53
condenser 307
condenser, glass 543
curved, of rectangular cross-section, bending stresses in 582
Tubing, steel, forging 313
Tupholme, C. H. S. 657
Turbine buckets 359
gas 488
generators, cooling of 435
impulse, cross-flow hydraulic 275
internal-combustion, Puplett 659
marine, reversing gear for 124
reaction, largest 430
Turbines, geared, discarding 125
hydraulic 545
modern hydraulic, of large capacity 468
correction to above paper 563
steam 710
steam, leaving losses in 661
steam, vapor refrigerating condensers for 128
Turbo-generators 189
-generators, pedestals for 189
Turcott, David. Methods of calculating the diameters of open-belt speed cones (C) 388
Turner, Prof. 433
Turner, T. Henry 125
Turntable, continuous 662
Twelve-hour day, the 562
Type W Stirling boiler: tests of a large 25

U

Uehling, F. F. Determination of chimney sizes (D) 537
U.E.S. treasurer's report for 1922 205
correction in 265
Ultramicrometer, recording 661
Uncle Sam a-flying 614
Underfeed stokers, design and operation of 19
Underground pipe lines, locating leaks in (C) 443
Unemployment, business cycles and 321
Unilateral system of tolerances 697
Unwin, Dr. 363, 433
Upson, R. H. Airship for long-haul heavy-traffic service 235
U. S. Bureau of Standards, steam research at the 168
U. S. Navy crane ship No. 1: an achievement 333
Usco patent automatic ash-removal 657
"U-117" German submarine, Diesel-engine clutch of 113

V

Vacuum pumps, dry-size selection of 103
Valve gear, Aster engine 189
pressure-relief, Robinson 129
sleeve, Pilliod 497
Valves and pipes, loss of head in 250
fuel-injection, for compressorless Diesel engines 251
ring, high-speed pump with 310
Van West portable set for testing gearing 256
ammonia, saturated, specific volume of 313
recompression system for evaporators 192
water (steam), properties of 314
Vaporizing devices, carburetors and, holes needed in 123
Vapors, specific heats of 663
Variable-speed, hydraulic-transmission drive for machine tools and manufacturing processes 238

VAUGHAN, H. H. Steam distribution in locomotive (D) ... 63
VAUGHAN, J. A. ... 490
VENNING, W. J. Safe engineering versus safety engineering ... 264
Ventilators, centrifugal ... 184
Venturi meter, oil ... 297
Vesuvio cascade grate ... 654
Vibration, bearing ... 711
generator ... 249
testing machine ... 711
Vibrations in foundations ... 248
VICKERS, CHAS. ... 122
Viscosity of lubricating oils at high pressures ... 315
Vocational training for the industries, means for the ... 169
VON BERNUTH, W. S. ... 123
VON HANFFSTENGEL, PROFESSOR ... 436

W

WALDRON, R. E. ... 48
WALFORD, ERIC W. ... 252
WALKER, WM. J. ... 706
Walker mechanic ... 492
Walkway surfaces, national conferences votes for safety code on ... 326
WALLACE, L. W. Management engineering in the paper industry (D) ... 424
Ten years' progress in management (D) ... 61
Wall structures, heat transfer through ... 724
Walls, hollow-tile, compressive tests of ... 590
WARD, H. A. Locating leaks in underground pipe lines (C) ... 443
WARDEL, E. B. Requirements of pulp and paper-mill repair shops (D) ... 428
WARNER, CHESTER ... 313
WARNER, E. ... 313
WARREN, MINTON W. Surge-tank problem (C) ... 204
Water, coal and man power of western slope of southern Appalachian mountains ... 637
flow of, air-bubble action and ... 542
flow of, through pipe ... 437
Gibson method and apparatus for measuring flow of in closed conduits ... 679
-level regulators ... 439
-power resources of Canada ... 395
power, state rights and ... 320
raw, freezing ... 56
-softening plants ... 546
supercooled ... 56
vapor-air mixtures ... 703
vapor (steam), properties of ... 314
WATERMAN, B. F. Testing involute spur gears (D) ... 81
WATERS, E. O. Stresses in electric-railway motor pinions (D) ... 137
Watertown Arsenal, radiography of metals at ... 257
Wave and hydraulic transmission, bibliographies on transmission of power ... 622
WEBER, CONSTANTIN ... 55
Weighing ... 45
Weights, counterbalance, design of segmental and sector (C) ... 601
Weir flow ... 611
Welded pressed-steel automobile wheels ... 706
pressure vessels ... 497
pressure vessels, Bureau of Standards conducts investigation on ... 540
vessels, Bureau of Standards report on to come later ... 210
Welding Society, American, annual meeting of ... 265
WELLMAN memorial meeting ... 450
WEST, G. H. Velocity of steam in pipes (C) ... 144
West, the electrical and industrial ... 317
WESTINGHOUSE war memorial scholarships ... 457
WHATMOUGH, W. A. ... 669
Whatmough, Keith-, carburetor ... 251
WHEELER, R. V. ... 251
WHEELER, DR. SCHUYLER SKAATS, the late ... 308
Wheels, automobile, welded pressed-steel ... 395
WHIDDINGTON, PROF. ... 497
WHITCOMB, F. O. Steel-car construction (D) ... 661
WHITE, W. B. Some engineering aspects of design of musical instruments ... 425
WHITE, W. M. Hydroelectric powers in Canada (D) ... 230
Modern hydraulic turbines of large capacity (D) ... 416
WHITNEY, H. L. Commercial economy of high pressure and high superheat in central station (D) ... 474
WHITNEY, H. LEROY. Elasticity of pipe bends (D) ... 65
WHITTEMORE, HERBERT L. ... 164
WIEST, KARL ... 590
Willamette geared locomotives ... 57
WILLIAMS, C. C. Ordnance industrial mobilization ... 311
WILLISTON, ARTHUR L. Training for the industries (D) ... 627
WILSON, J. A. The control of civil aviation ... 179
WILSON, R. E. ... 571
Wilson line, steam at ... 601
Wind propeller ... 440
Wire rope, steel, on sheaves ... 49
WISE, W. H. Methods of calculating the diameters of open-belt speed cones (C) ... 360
WITZ, AIMÉ ... 387
WOHLENBERG, W. J. Automatic stoker control (D) ... 663
Commercial economy of high pressure and high superheat in central station (D) ... 24
WOLF, R. B. Lumber dry kilns (D) ... 64
Management engineering in the paper industry ... 295, (D) ... 234
Women engineers' conference held in England ... 424
WOOD, A. J. Economic thickness of insulation in refrigerating field (D) ... 392
Wood, standardization of methods of testing now under way ... 60
WOODWARD, W. E. Steam distribution in the locomotive (D) ... 209
WOODWELL, J. E. Stoker design essentials (D) ... 63
Woodworking industries, the mechanical engineer in the management of ... 22
machinery, new factors influencing the design of ... 692
WOOLRICH, W. R., AND SWITZER, J. A. Water, coal and man power of the western slope of the southern Appalachian mountains ... 180
World power conference ... 637
power conference is announced, tentative program for first ... 445
power conference, London June 30—July 12, 1924 ... 615
Worm gearing, power of ... 720
WOTHERSPOON, W. L. Refinery and rolling mill for monel metal ... 363
"Wren" glider ... 285
WRIGHT, J. C. Schools for apprentices and shop training (D) ... 358
WRIGHT, MORRIS ... 179
Wrought-iron bars and plates, A.E.S.C. approves specifications for ... 358
WURTZ, T. C. ... 622

Y

YARROW, life of, a review of the book on ... 366
Yarrow water-tube boiler ... 568
YOUNG, G. A. ... 494
YOUNG, GARTH L. AND MARX, G. V. D. Performance tests of steel belts with compressed spruce pulleys ... 187
YOUNG, O. W. Steam distribution in the locomotive (D) ... 246
YOUNGER, JOHN. Problems that confront an executive ... 63

Z

Zeitler gasoline motor truck for railway-car bodies ... 617
Zinc-base die-casting alloy ... 129
Zoning, city, fundamentals of ... 250
667